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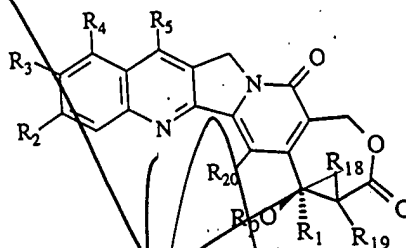
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CLAIMS

1. An analogue of camptothecin, characterized in that the hydroxy lactone of the camptothecin is a β -hydroxy lactone, or a pharmaceutical acceptable salt of the latter.
2. An analogue of camptothecin as claimed in claim 1, characterized in that it is substituted at least once by an halogen atom in any of positions 9, 10, 11 or 12 of its pentacyclic skeleton.
3. A compound as claimed in claim 1, characterized in that said compound is of general formula (HCPT)



(HCPT)

in racemic or enantiomeric form or any combinations of these forms, in which

R_1 represents a lower alkyl, a lower alkenyl, a lower alkynyl, a lower haloalkyl, a lower alkoxy lower alkyl or lower alkylthio lower alkyl;

R_2, R_3 and R_4 represent, independently, H, halo, lower haloalkyl, lower alkyl, lower alkenyl, cyano, lower cyanoalkyl, nitro, lower nitroalkyl, amido, lower amidoalkyl, hydrazino, lower hydrazinoalkyl, azido, lower azidoalkyl, $(CH_2)_m NR_6 R_7$, $(CH_2)_m OR_6$, $(CH_2)_m SR_6$, $(CH_2)_m CO_2 R_6$, $(CH_2)_m NR_6 C(O) R_8$, $(CH_2)_m C(O) R_8$, $(CH_2)_m OC(O) R_8$, $O(CH_2)_m NR_6 R_7$, $OC(O) NR_6 R_7$, $OC(O)(CH_2)_m CO_2 R_6$ or $(CH_2)_n [N=X]$, $OC(O) [N=X]$, $(CH_2)_m OC(O) [N=X]$ (in which $[N=X]$, in this invention, represents a heterocyclic group with 4 to 7 members with the nitrogen atom N, which is a member of the heterocyclic group, and X represents the remaining members, which are necessary to complete the heterocyclic group, selected from the group constituted by O, S, CH_2 , CH, N, NR₉ and

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R₈

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R9

lower alkoxy lower alkyl;
represents H, a lower alkyl, lower haloalkyl, aryl, lower
arylalkyl, or aryl or lower arylalkyl in which the aryl group is substituted

- by one or more groups chosen from the following radicals: lower alkyl, halo, nitro, amino, lower alkylamino, lower haloalkyl, lower hydroxyalkyl, lower alkoxy or lower alkoxy lower alkyl;
- 5 R_{10} represents H, a lower alkyl, lower haloalkyl, lower alkoxy, aryl or aryl substituted (i.e. having one to four substituents on the aryl group) by one or more groups chosen from the following radicals: lower alkyl, lower haloalkyl, lower hydroxyalkyl or lower alkoxy lower alkyl;
- R_{11} represents a lower alkyl, aryl, $(CH_2)_mOR_{14}$, $(CH_2)_mSR_{14}$, $(CH_2)_2NR_{14}R_{15}$ or $(CH_2)_m(N=X)$;
- 10 R_{12} and R_{13} represent, independently, a lower alkyl, aryl, lower alkoxy, aryloxy or amino;
- R_{14} and R_{15} represent, independently, H, lower alkyl or aryl;
- R_{16} represents H or OR_{21} ;
- R_{17} represents OR_6 or NR_6R_7 ;
- 15 R_{18} and R_{19} represent, independently, H, halo, lower alkyl, lower alkoxy or hydroxy;
- R_{20} represents H or halo;
- R_{21} represents H, a lower alkyl, CHO or $C(O)(CH_2)_mCH_3$;
- R_p represents H or an easily cleavable group preferably chosen from the groups corresponding to the formula $-C(O)-A-NR_{22}R_{23}$, in which A represents a linear or branched alkylene radical optionally substituted by a radical chosen from the free, esterified or salified hydroxy, halogen, free, esterified or salified carboxy, amino, mono or dialkylamino radicals, while R_{22} and R_{23} , independently, represent H, a lower alkyl, lower hydroxyalkyl, lower alkyl lower aminoalkyl, lower aminoalkyl, cycloalkyl, cycloalkyl lower alkyl, lower alkenyl, lower alkoxy lower alkyl, lower haloalkyl, or substituted or non substituted aryl or lower arylalkyl (i.e., substituted one to four times on the aryl group), in which the substituent is a lower alkyl, halo, nitro, amino, lower alkylamino, lower haloalkyl, lower hydroxyalkyl, lower alkoxy or lower alkoxy lower alkyl;
- 20 m is an integer comprised between 0 and 6;
- n is 1 or 2; and
- q represents an integer from 0 to 2; and
- 25 $[N=X]$ represents a heterocyclic group with 4 to 7 members, X representing the chain necessary to complete said heterocyclic group and selected from the group constituted by O, S, CH_2 , CH, N, NR_9 and COR_{10} ;
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or a pharmaceutically acceptable salt of the latter.

4. A compound according to claim 3, characterized in that :

- R₁ represents a lower alkyl, and preferably ethyl;
 R₂ represents halo;
 R₃ represents H, halo or lower haloalkyl;
 5 R₅ represents halo, lower alkyl, lower haloalkyl, lower aminoalkyl, substituted or non substituted (CH₂)_n[N=X] radical, or substituted or non substituted aryl or lower arylalkyl;
 R₁₈ and R₁₉ represent H;
 R₂₀ represents H.

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10 5. A compound according to claim 3, characterized in that is one of the following compounds :

- 5-ethyl-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]-quinoline-3,15-dione ;
 15 - 5,12-diethyl-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]-indolizino[1,2-b]quinoline-3,15-dione;
 - 8-ethyl-8-hydroxy-2,3,8,9,12,15-hexahydro-10H,13H-[1,4]dioxino[2,3-g]-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-10,13-dione;
 - 10-(benzyloxy)-5-ethyl-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]-indolizino[1,2-b]quinoline-3,15-dione;
 20 - 5-ethyl-5,10-dihydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]-indolizino[1,2-b]quinoline-3,15-dione;
 - 11-[(dimethylamino)methyl]-5-ethyl-5,10-dihydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
 - 5-ethyl-9-fluoro-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
 25 - 9-chloro-5-ethyl-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
 - 5-ethyl-9,10-difluoro-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]-indolizino[1,2-b]quinoline-3,15-dione;

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- 7-ethyl-7-hydroxy-7,8,11,14-tetrahydro-9*H*,12*H*-[1,3]dioxolo[4,5-*g*]-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-9,12-dione;

- 9-chloro-5-ethyl-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

5 - 5-ethyl-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

- 9,11-dichloro-5-ethyl-5-hydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

10 - 5-ethyl-9-fluoro-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

- 5-ethyl-10-fluoro-5-hydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

- 10-chloro-5-ethyl-5-hydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

15 - 9-chloro-5-ethyl-10-fluoro-5-hydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

- 5-ethyl-5,10-dihydroxy-11-(4-morpholinylmethyl)-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

20 - 5,12-diethyl-9-fluoro-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

- 5-ethyl-5-hydroxy-12-methyl-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

- 9-chloro-5-ethyl-5-hydroxy-10-methoxy-12-[(4-methyl-1-piperazinyl)methyl]-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

25 - 9-chloro-5-ethyl-5-hydroxy-10-methoxy-12-(4-morpholinylmethyl)-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

- 5-ethyl-5-hydroxy-12-[(4-methyl-1-piperazinyl)methyl]-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione ;

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- 5-ethyl-5-hydroxy-12-(1-piperidinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-5-hydroxy-12-(4-morpholinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5 - 5-ethyl-10-fluoro-5-hydroxy-12-[(4-methyl-1-piperazinyl)methyl]-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-10-fluoro-5-hydroxy-12-(4-morpholinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 10 - 5-ethyl-9-fluoro-5-hydroxy-10-methyl-12-[(4-methyl-1-piperazinyl)methyl]-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-9-fluoro-5-hydroxy-10-methyl-12-(4-morpholinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-9-fluoro-5-hydroxy-10-methyl-12-(1-piperidinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 15 - 8-ethyl-8-hydroxy-16-[(4-methyl-1-piperazinyl)methyl]-2,3,8,9,12,15-hexahydro-10H,13H-[1,4]dioxino[2,3-g]oxepino[3',4':6,7]indolizino[1,2-b]quinoline-10,13-dione;
- 9-chloro-5-ethyl-10-fluoro-5-hydroxy-12-(4-morpholinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 20 - 12-[3,6-dihydro-1(2H)-pyridinylmethyl]-5-ethyl-9,10-difluoro-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-9,10-difluoro-5-hydroxy-12-[(4-methyl-1-piperidinyl)methyl]-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-9,10-difluoro-5-hydroxy-12-(1-pyrrolidinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 25 - 5-ethyl-9,10-difluoro-5-hydroxy-12-[(4-methyl-1-piperazinyl)methyl]-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-9,10-difluoro-5-hydroxy-12-(1-piperidinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

- 12-[(dimethylamino)methyl]-5-ethyl-9,10-difluoro-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 9-chloro-5-ethyl-5-hydroxy-10-methyl-12-(4-morpholinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5 - 9-chloro-5-ethyl-5-hydroxy-10-methyl-12-[(4-methyl-1-piperazinyl)methyl]-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 12-[[benzyl(methyl)amino]methyl]-9-chloro-5-ethyl-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 12-[(4-benzyl-1-piperazinyl)methyl]-9-chloro-5-ethyl-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 10 - 9-chloro-5-ethyl-5-hydroxy-10-methyl-12-(1-piperidinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 12-[(4-benzyl-1-piperazinyl)methyl]-5-ethyl-10-fluoro-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 15 - 12-[(4-benzyl-1-piperazinyl)methyl]-5-ethyl-9-fluoro-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 12-[(dimethylamino)methyl]-5-ethyl-9-fluoro-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 12-[(diethylamino)methyl]-5-ethyl-9-fluoro-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 20 - 5-ethyl-9-fluoro-5-hydroxy-10-methyl-12-[(4-methyl-1-piperidinyl)methyl]-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-9-fluoro-5-hydroxy-10-methyl-12-(1-pyrrolidinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 25 - 12-[3,6-dihydro-1(2H)-pyridinylmethyl]-5-ethyl-9-fluoro-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione ;
- 12-[(diisobutylamino)methyl]-5-ethyl-9-fluoro-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
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- 5-ethyl-9-fluoro-5-hydroxy-10-methoxy-12-[(4-methyl-1-piperazinyl)methyl]-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-9-fluoro-5-hydroxy-10-methoxy-12-(1-piperidinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 9-chloro-12-[(dimethylamino)methyl]-5-ethyl-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 10 - 9-chloro-5-ethyl-5-hydroxy-10-methoxy-12-(1-piperidinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 12-[3,6-dihydro-1(2H)-pyridinylmethyl]-5-ethyl-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-5-hydroxy-10-methoxy-12-[(4-methyl-1-piperidinyl)methyl]-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 15 - 5-ethyl-5-hydroxy-10-methoxy-12-[(4-methyl-1-piperazinyl)methyl]-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-5-hydroxy-10-methoxy-12-(1-pyrrolidinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 20 - 12-[(4-benzyl-1-piperazinyl)methyl]-5-ethyl-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 9-chloro-5-ethyl-5-hydroxy-10-methyl-12-[(4-methyl-1-piperidinyl)methyl]-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 10-(benzyloxy)-5-ethyl-9-fluoro-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 25 - 5-ethyl-9-fluoro-5,10-dihydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-9,10-difluoro-3,15-dioxo-4,5,13,15-tetrahydro-1H,3H-oxepino[3',4':6,7]indolizino[1,2-b]quinolin-5-yl 2-aminoacetate;

- 5-ethyl-9,10-difluoro-3,15-dioxo-4,5,13,15-tetrahydro-1*H*,3*H*-oxepino[3',4':6,7]-indolizino[1,2-*b*]quinolin-5-yl 3-aminopropanoate;
- 2,9-diethyl-9-hydroxy-1,2,3,9,10,16-hexahydro-13*H*-[1,3]oxazino[5,6-*f*]-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-11,14-dione;
- 5 - 9-ethyl-9-hydroxy-2-methyl-1,2,3,9,10,16-hexahydro-13*H*-[1,3]oxazino[5,6-*f*]-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-11,14-dione;
- 2-benzyl-9-ethyl-9-hydroxy-1,2,3,9,10,16-hexahydro-13*H*-[1,3]oxazino[5,6-*f*]-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-11,14-dione;
- 10 - 2-benzyl-9-ethyl-5-fluoro-9-hydroxy-1,2,3,9,10,16-hexahydro-13*H*-[1,3]oxazino[5,6-*f*]oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-11,14-dione;
- (+)-5-ethyl-9,10-difluoro-5-hydroxy-4,5,13,15-tetrahydro-1*H*,3*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- (+)-1-[9-chloro-5-ethyl-5-hydroxy-10-methyl-3,15-dioxo-4,5,13,15-tetrahydro-1*H*,3*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinolin-12-ylmethyl]4-methyl-hexahydropyridine;
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or a pharmaceutically acceptable salt of the latter.

6. A compound according to claim 5, characterized in that is one of the following compounds :

- 20 - 5-ethyl-5-hydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 5,12-diethyl-5-hydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 8-ethyl-8-hydroxy-2,3,8,9,12,15-hexahydro-10*H*,13*H*-[1,4]dioxino[2,3-*g*]-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-10,13-dione;
- 25 - 5-ethyl-5,10-dihydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 5-ethyl-9-fluoro-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

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- 5 - 9-chloro-5-ethyl-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-9,10-difluoro-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5 - 7-ethyl-7-hydroxy-7,8,11,14-tetrahydro-9H,12H-[1,3]dioxolo[4,5-g]oxepino[3',4':6,7]indolizino[1,2-b]quinoline-9,12-dione;
- 9-chloro-5-ethyl-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 10 - 5-ethyl-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 9,11-dichloro-5-ethyl-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-9-fluoro-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 15 - 5-ethyl-10-fluoro-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 10-chloro-5-ethyl-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 9-chloro-5-ethyl-10-fluoro-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 20 - 5,12-diethyl-9-fluoro-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-5-hydroxy-12-methyl-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 25 - 5-ethyl-5-hydroxy-12-(4-morpholinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;
- 5-ethyl-9-fluoro-5-hydroxy-10-methyl-12-[(4-methyl-1-piperazinyl)methyl]1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

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- 5-ethyl-9-fluoro-5-hydroxy-10-methyl-12-(4-morpholinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

- 5-ethyl-9-fluoro-5-hydroxy-10-methyl-12-(1-piperidinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

5 - 12-[3,6-dihydro-1(2H)-pyridinylmethyl]5-ethyl-9,10-difluoro-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

- 5-ethyl-9,10-difluoro-5-hydroxy-12-[(4-methyl-1-piperidinyl)methyl]-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

10 - 5-ethyl-9,10-difluoro-5-hydroxy-12-(1-pyrrolidinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

- 5-ethyl-9,10-difluoro-5-hydroxy-12-[(4-methyl-1-piperazinyl)methyl]-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

- 5-ethyl-9,10-difluoro-5-hydroxy-12-(1-piperidinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

15 - 12-[(dimethylamino)methyl]5-ethyl-9,10-difluoro-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

- 9-chloro-5-ethyl-5-hydroxy-10-methyl-12-(4-morpholinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

20 - 9-chloro-5-ethyl-5-hydroxy-10-methyl-12-[(4-methyl-1-piperazinyl)methyl]-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

- 12-[(4-benzyl-1-piperazinyl)methyl]9-chloro-5-ethyl-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

- 12-[(diethylamino)methyl]-5-ethyl-9-fluoro-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

25 - 5-ethyl-9-fluoro-5-hydroxy-10-methyl-12-[(4-methyl-1-piperidinyl)methyl]-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

- 5-ethyl-9-fluoro-5-hydroxy-10-methyl-12-(1-pyrrolidinylmethyl)-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione;

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- 12-[3,6-dihydro-1(2*H*)-pyridinylmethyl]5-ethyl-9-fluoro-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione ;
- 5 - 12-[(diisobutylamino)methyl]5-ethyl-9-fluoro-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 5-ethyl-9-fluoro-5-hydroxy-10-methoxy-12-(1-piperidinylmethyl)-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 10 - 9-chloro-12-[(dimethylamino)methyl]5-ethyl-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 9-chloro-5-ethyl-5-hydroxy-10-methoxy-12-(1-piperidinylmethyl)-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 15 - 5-ethyl-5-hydroxy-10-methoxy-12-[(4-methyl-1-piperidinyl)methyl]1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 9-chloro-5-ethyl-5-hydroxy-10-methyl-12-[(4-methyl-1-piperidinyl)methyl]1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 20 - 5-ethyl-9-fluoro-5,10-dihydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione ;
- 2,9-diethyl-9-hydroxy-1,2,3,9,10,16-hexahydro-13*H*-[1,3]oxazino[5,6-*f*]-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-11,14-dione ;
- 9-ethyl-9-hydroxy-2-methyl-1,2,3,9,10,16-hexahydro-13*H*-[1,3]oxazino[5,6-*f*]-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-11,14-dione ;
- 25 - 2-benzyl-9-ethyl-9-hydroxy-1,2,3,9,10,16-hexahydro-13*H*-[1,3]oxazino[5,6-*f*]-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-11,14-dione ;
- 2-benzyl-9-ethyl-5-fluoro-9-hydroxy-1,2,3,9,10,16-hexahydro-13*H*-[1,3]oxazino[5,6-*f*]oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-11,14-dione ;
- 30 - (+)-5-ethyl-9,10-difluoro-5-hydroxy-4,5,13,15-tetrahydro-1*H*,3*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

- (+)-1-[9-chloro-5-ethyl-5-hydroxy-10-methyl-3,15-dioxo-4,5,13,15-tetrahydro-1*H*,3*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinolin-12-ylmethyl]4-methyl-hexahydropyridine;

or a pharmaceutically acceptable salt of the latter.

Ans. A3

7. A compound according to claim 6, characterized in that it is one of the following compounds :

- 5-ethyl-5-hydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

10 - 5,12-diethyl-5-hydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

- 8-ethyl-8-hydroxy-2,3,8,9,12,15-hexahydro-10*H*,13*H*-[1,4]dioxino[2,3-*g*]oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-10,13-dione;

- 5-ethyl-5,10-dihydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

15 - 5-ethyl-9-fluoro-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

- 9-chloro-5-ethyl-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

20 - 5-ethyl-9,10-difluoro-5-hydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

- 7-ethyl-7-hydroxy-7,8,11,14-tetrahydro-9*H*,12*H*-[1,3]dioxolo[4,5-*g*]oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-9,12-dione;

- 9-chloro-5-ethyl-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

25 - 5-ethyl-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

- 5-ethyl-9-fluoro-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

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- 5-ethyl-10-fluoro-5-hydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]-indolizino[1,2-*b*]quinoline-3,15-dione;
- 10-chloro-5-ethyl-5-hydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]-indolizino[1,2-*b*]quinoline-3,15-dione;
- 5 - 9-chloro-5-ethyl-10-fluoro-5-hydroxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 5,12-diethyl-9-fluoro-5-hydroxy-10-methoxy-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 10 - 5-ethyl-5-hydroxy-12-methyl-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]-indolizino[1,2-*b*]quinoline-3,15-dione;
- 5-ethyl-5-hydroxy-12-(4-morpholinylmethyl)-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 5-ethyl-9,10-difluoro-5-hydroxy-12-[(4-methyl-1-piperidinyl)methyl]-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 15 - 5-ethyl-9,10-difluoro-5-hydroxy-12-(1-pyrrolidinylmethyl)-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 9-chloro-5-ethyl-5-hydroxy-10-methyl-12-(4-morpholinylmethyl)-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 9-chloro-5-ethyl-5-hydroxy-10-methyl-12-[(4-methyl-1-piperazinyl)methyl]-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 20 - 12-[(diethylamino)methyl]-5-ethyl-9-fluoro-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 5-ethyl-9-fluoro-5-hydroxy-10-methyl-12-[(4-methyl-1-piperidinyl)methyl]-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 25 - 12-[3,6-dihydro-1(2*H*)-pyridinylmethyl]-5-ethyl-9-fluoro-5-hydroxy-10-methyl-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione ;
- 5-ethyl-9-fluoro-5-hydroxy-10-methoxy-12-(1-piperidinylmethyl)-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;
- 30 - 5-ethyl-9-fluoro-5-hydroxy-10-methoxy-12-(1-piperidinylmethyl)-1,4,5,13-tetrahydro-3*H*,15*H*-oxepino[3',4':6,7]indolizino[1,2-*b*]quinoline-3,15-dione;

- 5-ethyl-9-fluoro-5,10-dihydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]-indolizino[1,2-b]quinoline-3,15-dione ;

- 2,9-diethyl-9-hydroxy-1,2,3,9,10,16-hexahydro-13H-[1,3]oxazino[5,6-f]-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-11,14-dione ;

5 - 9-ethyl-9-hydroxy-2-methyl-1,2,3,9,10,16-hexahydro-13H-[1,3]oxazino[5,6-f]-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-11,14-dione ;

- 2-benzyl-9-ethyl-9-hydroxy-1,2,3,9,10,16-hexahydro-13H-[1,3]oxazino[5,6-f]-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-11,14-dione ;

10 - 2-benzyl-9-ethyl-5-fluoro-9-hydroxy-1,2,3,9,10,16-hexahydro-13H-[1,3]oxazino[5,6-f]oxepino[3',4':6,7]indolizino[1,2-b]quinoline-11,14-dione ;

- (+)-5-ethyl-9,10-difluoro-5-hydroxy-4,5,13,15-tetrahydro-1H,3H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione ;

15 - (+)-1-[9-chloro-5-ethyl-5-hydroxy-10-methyl-3,15-dioxo-4,5,13,15-tetrahydro-1H,3H-oxepino[3',4':6,7]indolizino[1,2-b]quinolin-12-ylmethyl]4-methyl-hexahydropyridine ;

or a pharmaceutically acceptable salt of the latter.

Ins. A3 → 8. A compound according to claim 7, characterized in that is one of the following compounds :

20 - 5-ethyl-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione ;

- 5-ethyl-5,10-dihydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione ;

- 5-ethyl-10-fluoro-5-hydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione ;

25 - 5-ethyl-9-fluoro-5,10-dihydroxy-1,4,5,13-tetrahydro-3H,15H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione ;

- (+)-5-ethyl-9,10-difluoro-5-hydroxy-4,5,13,15-tetrahydro-1H,3H-oxepino[3',4':6,7]indolizino[1,2-b]quinoline-3,15-dione ;

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15. Use of a compound according to any one of claims 1 to 9 for the preparation of anti-parasitic medicaments.

16. A method of treatment of diseases related with topoisomerase I and/or topoisomerase II disorders, and especially cancer, viral and parasitic diseases, comprising the administration of a therapeutically efficient dose of a camptothecin analog, said camptothecin analog being characterized in that it features a β -hydroxy lactone instead of the α -hydroxy lactone of natural camptothecin.

17. A method of treatment as claimed in claim 16, characterized in that the camptothecin analog is a compound according to claim 3.

add
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